

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| Connect America Fund |) | WC Docket No. 10-90 |
| |) | |
| A National Broadband Plan for Our Future |) | GN Docket No. 09-51 |
| |) | |
| High cost Universal Service Support |) | WC Docket No. 05-337 |

**REPLY COMMENTS OF THE NEBRASKA RURAL INDEPENDENT
COMPANIES**

Dated: August 11, 2010

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SUMMARY OF REPLY COMMENTS

The Nebraska Rural Independent Telephone Companies (the “Nebraska Companies”) appreciate the opportunity to submit these reply comments in response to the *NOI/NPRM*.¹ In these reply comments, the Nebraska Companies will address the following subjects: (a) Provider-of-Last-Resort (“POLR”) responsibilities are fundamental to voice network ubiquity; (b) the Commission should not phase out rate-of-return regulation and replace it with price-cap or other incentive regulation; (c) market-based mechanisms such as procurement or reverse auctions should not be utilized in rural unserved areas; (d) state-federal collaboration should be pursued in the deployment of universal broadband service; (e) fiber-to-the-premises (“FTTP”) is often the most cost-effective method for providing broadband service; (f) costs and revenues associated with video services should be excluded in determining Connect America Fund (“CAF”) support; and (g) federal universal service fund support is required to preserve the consumer benefits provided by the existing network.

As was advocated by the Nebraska Companies in their initial comments, the design and implementation of a broadband POLR system is of utmost importance to the design of any future broadband support system.² The Nebraska Public Service Commission (“NPSC”) and a number of additional commenters have joined the Nebraska Companies in urging the Commission to carefully consider the potential impact of POLR duties and policies in relation to existing Carrier-of-Last-Resort (“COLR”) duties and policies.

The Nebraska Companies join the commenters that advocate that the Commission’s goal of ubiquitous broadband availability in rural and other high-cost areas can only be achieved if the

¹ Notice of Inquiry (“*NOI*”) and Notice of Proposed Rulemaking (“*NPRM*”) released by the Federal Communications Commission, FCC 10-58 (April 21, 2010).

² Comments of the Nebraska Companies, pp. 72-81.

Commission maintains rate-of-return (“RoR”) regulation for rural LECs. RoR regulation provides proper incentives to achieve ubiquitous broadband availability. To replace RoR regulation with another regulatory model that has no proven track record for small carriers could place future capital deployment at risk.

Procurement or reverse auctions should not be utilized in rural unserved areas inasmuch that such mechanisms pose a threat to the stability of universal service and continuing long-term investment in high-cost areas. The Nebraska Companies share the concerns of other commenters that these mechanisms favor large carriers while disadvantaging smaller providers, pose an unreasonable risk to continued availability of affordable voice services and involve many unanswered issues such as how POLR/COLR issues will be addressed.

All states have a stake in ubiquitous broadband deployment and thus should share in the costs thereof. The Nebraska Companies support the comments of state commissions such as the Pennsylvania Public Utility Commission (“PPUC”) and the NPSC advocating that the broadband deployment goals of the National Broadband Plan (“NBP”) can best be accomplished through creation of explicit incentives for states to financially support federal universal service mechanisms.³

The Nebraska Companies believe that relevant data disproves the claims of some commenters that FTTP is not a cost effective technology for deploying broadband in rural areas. In these Reply Comments the Nebraska Companies provide data and a case study that

³ Comments of Pennsylvania Public Utility Commission, p. 35; Comments of the Nebraska Public Service Commission, p. 15.

demonstrate the cost effectiveness of FTTP as both a short-term and long-term means of providing broadband service.⁴

Consistent with the position advanced in their initial comments, the Nebraska Companies advocate that costs and revenues associated with video services should be excluded in determining CAF support.⁵ Estimating video revenues and costs is difficult, may be unreliable and video costs and revenues should not be included in the calculation of CAF support because such inclusion may well increase the size of the CAF.

The Nebraska Companies share the concerns expressed by many commenters that the proposed steps to cut legacy High-Cost support set forth in the *NPRM* will negatively affect currently affordable voice services. The Nebraska Companies believe that the current system of universal service support that assists, where necessary, in the recovery of capital investments over their depreciable lives has worked well, and is likely to be superior to any new regime that includes only up-front capital expenditure support payments.

⁴ See, Section E *infra*.

⁵ Comments of the Nebraska Companies, pp. 28-30.

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REPLY COMMENTS OF THE NEBRASKA RURAL INDEPENDENT COMPANIES

I. INTRODUCTION

The Nebraska Rural Independent Companies (the "Nebraska Companies")⁶ hereby submit reply comments in the above-captioned proceedings. The Nebraska Companies appreciate the opportunity to file reply comments in response to the comments filed by other interested parties in these proceedings on July 12, 2010 regarding the Notice of Inquiry ("*NOI*") and Notice of Proposed Rulemaking ("*NPRM*") released by the Federal Communications Commission (herein the "Commission") on April 21, 2010 (FCC 10-58).

⁶ The Nebraska Companies are: Arlington Telephone Company, Blair Telephone Company, Cambridge Telephone Co., Clarks Telecommunications Co., Consolidated Telephone Company, Consolidated Telco, Inc., Consolidated Telecom, Inc., The Curtis Telephone Company, Eastern Nebraska Telephone Company, Great Plains Communications, Inc., Hamilton Telephone Company, Hartington Telecommunications Co., Inc., Hershey Cooperative Telephone Company, Inc., K & M Telephone Company, Inc., The Nebraska Central Telephone Company, Northeast Nebraska Telephone Company, Rock County Telephone Company, Stanton Telephone Co., Inc., and Three River Telco.

II. DISCUSSION

A. **Commenting Parties Have Recognized that Provider-of-Last-Resort Issues Are Fundamental to Voice Network Ubiquity**

The initial comments submitted by the Nebraska Companies noted that state-created COLR obligations have been central to the success of the voice network reaching near ubiquity.⁷ The Nebraska Companies recommend that the Commission should similarly design a broadband POLR mechanism before making any funding decisions. Without a well-designed system to define and administer broadband POLR duties, it would be difficult to ensure that federal funding actually advances universal service goals. Moreover, the Nebraska Companies suggest that it would be premature for the Commission to decide questions regarding modeling or auctions without first deciding how broadband POLR duties will be defined, assigned, and enforced.⁸

The Nebraska Companies are pleased to note that the Nebraska Public Service Commission (“NPSC”) filed similar comments. The NPSC supported the Nebraska Companies’ central assertion, noting the importance of the wide range of duties traditionally assigned to COLRs, including wholesale duties and exit limitations.⁹ The Nebraska Companies also agree with the NPSC that the Commission should:

consider the potential impact of the broadband providers’ duties and policies in relation to COLR duties and policies. These responsibilities should match as

⁷ Comments of the Nebraska Companies, pp. 80-81.

⁸ *Id.*, p. 72.

⁹ Comments of the NPSC, p. 12.

closely as possible to the duties and policies for traditional COLRs so as not to harm existing voice and broadband services.¹⁰

The NPSC Comments recognize the historical importance of state law in defining voice COLR policies. The NPSC reported that it sees no reason to change this policy during the transition to broadband. The Nebraska Companies agree. States not only have historical authority over COLR issues, but were also recognized in the 1996 Act as the primary decision-makers regarding which carriers are assigned eligible telecommunications carrier (“ETC”) duties (the 1996 Act’s closest analogy to COLR status) as well as primary jurisdiction to establish service areas.¹¹

B. The Commission should not Phase out Rate-of-Return Regulation and Replace It with Price-cap or Other Incentive Regulation

Many commenting parties asserted that the Commission’s goal of ubiquitous broadband availability in rural and other high-cost areas can only be achieved if the Commission maintains rate-of-return (“RoR”) regulation for rural LECs.¹² The Nebraska Companies agree that RoR regulation has provided, and can continue to provide, the proper incentives to achieve that goal.

RoR regulation provides small, rural LECs with the financial stability that promotes investment. Continued stability is necessary if rural LECs are to continue making capital investments in multi-purpose networks capable of bringing advanced and affordable telecommunications services, including broadband, to rural areas.¹³ The Nebraska Companies

¹⁰ *Id.*

¹¹ 47 U.S.C. § 214(e).

¹² See, Comments of TCA at pp. 10-12; Comments of North Dakota Rural Telephone Group, pp. 9-12; Comments of South Dakota Public Utilities Commission (“SDPUC”), p. 7; Comments of Argenbright & Kirkpatrick, pp. 2-3; Comments of NECA, et. al., p. 46; Comments of Blooston Rural Carriers, pp. 16-21; Comments of PPUC, p. 4; Comments of Texas Statewide Telephone Cooperative, Inc., pp. 7-10; Comments of SDTA, pp. 33-35; Comments of Utah Rural Telecom Association, pp. 5-6; Comments of JSI, pp. 15-19; and Joint Comments of the NPSC and the North Dakota Commission, p. 13.

¹³ Comments of Texas Statewide Telephone Cooperative, Inc., p. 7.

agree with the Texas Statewide Telephone Cooperative that in the past capital investments by rural LECs were made possible by the current structure, including RoR cost recovery for interstate costs, universal service support and intercarrier compensation. The Commission will put future capital deployment by small LECs at risk if it replaces such proven mechanisms with new programs that have no proven track record.¹⁴

The NBP recognizes that RoR regulation was implemented in the 1960s when there was only a single provider of voice services in a given geographic area that had COLR obligations to serve all customers.¹⁵ In many rural areas, this COLR obligation still exists and extends over sizable service areas with low-customer density. The service costs of such rural carriers will inevitably be higher than carriers that have no COLR obligations or that operate in more densely populated areas. RoR regulation remains a reasonable approach to use in such areas, because RoR companies receive a regulated return based upon their actual infrastructure investment and operational expenses. Moreover, the existing RoR mechanism ensures efficiency and oversight by subjecting carriers to numerous reviews by USAC, NECA, state commissions and the Commission.¹⁶

As noted by the South Dakota Telecommunications Association (“SDTA”), the Commission determined in the MAG Order that cost recovery for non-price cap carriers can reasonably be based upon an embedded, rate-of-return methodology.¹⁷ This is still true. In order to accomplish the goals of universal broadband availability, the Nebraska Companies

¹⁴ *Id.*, p. 4.

¹⁵ NBP, p. 147.

¹⁶ Comments of Texas Statewide Telephone Cooperative, Inc., p. 8.

¹⁷ Comments of SDTA, p. 34, footnote 78.

recommend that the Commission continues RoR regulation to provide rural carriers serving rural, high-cost areas with the appropriate economic incentives for investment and predictable revenues in order to secure financing for broadband investment.

The Nebraska Companies urge the Commission to dismiss assertions that RoR regulation encourages inefficient investment or leads to inefficient USF mechanisms. Verizon, for example, claims that RoR regulation has led RoR LECs to unnecessarily deploy FTTP technology.¹⁸ Yet, there are legitimate reasons that a prudent company would install FTTP.¹⁹ Replacing existing outside plant with a fiber network is more economical than replacing it with copper plant.²⁰

The Nebraska Companies support the commenters that oppose a shift from RoR to incentive or price-cap regulation. Under an incentive regulatory regime, carriers are allowed to keep, as profit, any funding that is not invested in infrastructure or spent on operational expenses.²¹ Thus, to maximize profits, price-cap carriers have an incentive to limit capital expenditures in markets with the least revenue potential (rural areas), and to decrease operational expenses. The result has been a lack of investment in rural areas by price-cap carriers. Several commenters mentioned the NBP's conclusion that two-thirds of the unserved households are located in the service areas of large and mid-size price-cap companies.²² This NBP finding is entirely consistent with the fact reported by National Exchange Carrier Association ("NECA"),

¹⁸ Comments of Verizon and Verizon Wireless, p. 13.

¹⁹ See, section 5 of these Reply Comments.

²⁰ Comments of the Nebraska Companies, p. 50.

²¹ Comments of Blooston Rural Carriers, p. 19.

²² Comments of the SDPUC, p. 7; Comments of SDTA, p. 15; Comments of TCA, p. 10; Comments of Blooston Rural Carriers, p. 13; Comments of Texas Statewide Telephone Cooperative, Inc., p. 7; and Comments of NECA, et. al., p. 46.

that rural LEC networks are now capable of providing broadband service on average to over 90 percent of their customers, albeit in some cases at speeds less than the 4/1 Mbps standard.²³ Taken together, these facts invalidate claims that the current high-cost universal service support system, including the RoR mechanism, has failed to bring the advantages of broadband technology to an overwhelming majority of rural consumers.²⁴

The Nebraska Companies caution against accepting general claims that incentive regulation is more efficient and conducive to fostering innovation and does not harm universal service. Verizon states that the Commission's proposal to require current rate-of-return carriers to shift to incentive regulation and a per-line USF support approach has worked previously without harming universal service.²⁵ However, as a wireline carrier subject to incentive regulation, Verizon did not invest in rural areas and more recently sold rural areas in a number of states to FairPoint and Frontier. Verizon's position ignores the substantial evidence from its own recent behavior that price cap regulation, by reducing support to serve low-density, high-cost areas, creates incentives to divest rather than to invest in such areas.

Similarly, Sprint credited price-cap regulation with stimulating the productivity gains achieved by price-cap LECs.²⁶ Yet, Sprint is silent on the degree to which price-cap regulation has furthered the Commission's goal of universal access to broadband.

In fact, two price cap carriers failed to provide a ringing endorsement of price caps as a method of promoting universal service. Windstream is one of the companies the Commission

²³ Comments of NECA, et. al., p. 3.

²⁴ Comments of CTIA-the Wireless Association, p. 16.

²⁵ Comments of Verizon and Verizon Wireless, p. 18, citing Windstream's Petition for Conversion to Price Cap Regulation and for Limited Relief Order.

²⁶ Comments of Sprint Nextel Corporation, p. 12.

cites as voluntarily electing to convert to price-cap regulation.²⁷ Yet Windstream attributed reduced per-line support as an underlying reason for its own unserved areas.²⁸ AT&T, the nation's largest price-cap carrier, did not state definitively whether RoR regulation should be phased out and replaced with price-cap regulation for rural ILECs.²⁹

State commissions generally recognized the past successes of RoR regulation on the investment and deployment of broadband-capable networks and generally encouraged the Commission to maintain the form of regulation that will best achieve the broadband goals.³⁰ For example, the PPUC concluded that broadband deployment is higher among rural RoR carriers than it is in the rural areas served by non-rural carriers and by non-rural carriers in general.³¹ The PPUC also asserted that this pattern is driven by incentives built into state and federal ratemaking systems.

[M]echanisms containing a capital and network investment incentive to invest induce carriers to invest in broadband technologies, while mechanisms that break the relationship between support and investment retard the deployment of broadband network technologies and facilities.³²

The Nebraska Companies concur with these observations, and further note that the Nebraska Universal Service Fund ("NUSF") is based on both forward-looking cost and rate-of-return principles. Based upon the Nebraska Companies' experience, the NUSF creates appropriate incentives to invest. On the one hand, the NUSF sets a maximum amount of support

²⁷ *NPRM*, para. 123.

²⁸ "If Windstream received the same per-line support as that received by some of the 800 small companies and co-ops, it too would be able to deliver higher speeds and serve customers who cannot be addressed with private sector investment alone." Windstream Comments, p. 4.

²⁹ Comments of AT&T Inc., p. 21.

³⁰ Comments of the PPUC, p. 4; Comments of the SDPUC, p. 7.

³¹ Comments of the PPUC, pp. 11 and 37.

³² *Id.*, p. 11.

derived from model-based cost estimates. This limits any tendency to over-invest. At the same time, the RoR calculations in the Nebraska system encourage rural LECs to make regular and substantial capital investments in broadband-capable facilities. The ultimate result in Nebraska has been a higher level of broadband deployment in the areas served by smaller RoR carriers.

The PPUC recommends that the Commission engage in a national study of the degree to which DSL service is more widely available in areas: 1) served by rural RoR carriers and 2) served by price cap carriers serving rural UNE zones.³³ The Nebraska Companies support this recommendation. In addition, the Commission should study the degree to which DSL service is more widely available in areas: 1) where USF support is determined by actual investment and 2) where USF support is determined solely by model-based investment estimates. A thorough survey of this kind will likely be very helpful to the Commission in identifying the regulatory and USF policies that actually promote broadband investment.

At the very least, the Nebraska Companies urge that prior to implementing any radical policy changes that would shift rural RoR carriers to incentive regulation the Commission should analyze the data from the state broadband mapping efforts to determine the availability and affordability of broadband services in rural, high-cost areas and to determine whether and how past RoR policies affected those outcomes.³⁴

C. A Market-based Mechanism Such as Procurement or Reverse Auctions will not Work for Deploying and Maintaining Broadband Services and should not be Utilized in Rural Unserved Areas

The *NOI* sought comment on whether some form of competitive procurement auction would be an efficient mechanism for extending broadband-capable infrastructure in unserved

³³ *Id.*, p. 12.

³⁴ Comments of Utah Rural Telecom Association, p. 5.

areas.³⁵ The Commission recognizes some of the inherent limitations of auctions and suggests that such a competitive process might be used to target one-time subsidies where revenues are likely to cover ongoing costs of operation.³⁶ The Nebraska Companies do not believe that procurement auctions (or the functional equivalent) should be considered for distributing broadband support. The mechanism ultimately adopted must be rigorous and comprehensive and must include POLR considerations.³⁷

Over 35 parties commented on the procurement auction issues raised in the *NOI*.³⁸ Commenters supporting a market-based mechanism generally asserted that procurement auctions, reverse auctions or an equivalent competitive bidding process would reduce the amount of support required³⁹ or increase efficiency in the distribution of support.⁴⁰ These commenters largely ignored the realities of rural unserved areas and the ongoing network development and quality of service issues.

Nebraska and North Dakota are two states intimately familiar with the issues regarding the provision of broadband service to unserved rural populations. In their comments, the NPSC jointly with the North Dakota Public Service Commission (“North Dakota Commission”) took a comprehensive view of this issue and concluded that the adoption of a procurement auction solution would be risky, threatening the stability of universal service and chilling long-term

³⁵ *NOI*, para. 47.

³⁶ *Id.*

³⁷ Comments of Nebraska Companies, p. 79.

³⁸ *NOI*, paras. 43-48.

³⁹ Comments of New Jersey Board of Public Utilities, p. 7; Comments of CTIA-The Wireless Association, p. 29.

⁴⁰ Comments of AT&T, pp. 10-12; Comments of Verizon and Verizon Wireless, pp. 27-28.

investment.⁴¹ The NPSC and North Dakota Commission made the following comments with which the Nebraska Companies agree:

- Procurement auctions will favor the largest carriers (with greater ability to spread costs) and disadvantage smaller providers and new entrants;
- Availability of continued and affordable voice services may be placed at risk; and
- The Commission must resolve complex issues in any auction, including whether a winning bidder could fulfill ongoing service obligations, the duration of support, how bids would be evaluated, how COLR/POLR obligations would be handled, how auctions would be used in tribal lands, build-out time frame requirements, minimum service requirements and service price.

The NPSC and North Dakota Commission conclude that the *NOI/NPRM* leaves too many unanswered questions relating to the auction mechanism.⁴²

These same concerns over stability and the chilling effect of auctions on investment were shared by a number of commenters actively engaged in rural markets. Many of these commenters suggested that utilization of a procurement auction process will create a “race to the bottom” where only the bid price is considered and the maximization of broadband coverage and quality of service issues will fall by the wayside.⁴³ Others, such as CoBank, a lender to utility companies in rural America, commented that auctions will be disruptive, introduce significant administrative complexities and ignore COLR obligations currently in place.⁴⁴

⁴¹ Joint Comments of the NPSC and the North Dakota Commission, pp. 9-10.

⁴² *Id.*, pp. 10-11.

⁴³ Joint Comments of NECA, et. al., p. 23; Comments of TCA, p. 16.

⁴⁴ Comments of CoBank, pp. 6-7.

Commenting parties that opposed procurement or reverse auctions cited previous unsuccessful attempts by the Commission (or other federal agencies) to establish an auction process. Some notable examples included the rejection of auctions by the Rural Task Force in its White Paper #3,⁴⁵ and the rejection of the auction concept by the Department of Commerce National Telecommunications Information Administration (“NTIA”) and the Department of Agriculture Rural Utilities Service (“RUS”) despite the recommendation of the “71 Concerned Economists” referenced in the *NOI*.⁴⁶

Even commenters that ostensibly supported auctions did so only with significant conditions. The Mid-Atlantic Conference of Regulatory Commissioners (the “MACRUC States”) suggested using an auction process with the following conditions:

- Broadband, voice and wireless POLR obligations must be considered;
- Reasonable comparability as required by Section 254;
- Service pricing indices; and
- The FCC should proceed cautiously.⁴⁷

Other parties commented that should the Commission introduce auctions it should do so on a pilot basis to validate the anticipated efficiency of an auction methodology⁴⁸ or utilize test auctions to produce empirical data for what is currently theoretical.⁴⁹

⁴⁵ Comments of ICORE, p. 10.

⁴⁶ Comments of Texas Statewide Telephone Cooperative, Inc., p. 20; Comments of Alexicon Telecommunications Consulting, p. 29.

⁴⁷ Comments of the MACRUC States, pp. 9-11.

⁴⁸ Comments of the Massachusetts Department of Telecommunications and Cable, pp. 10-11.

⁴⁹ Comments of Alexicon Telecommunications Consulting, pp. 29 and 35.

Perhaps the most comprehensive review of the FCC's procurement auction issue was provided by the National Association of State Utility Consumer Advocates, The Maine Office of Public Advocate, Office of the Ohio Consumers' Counsel, Pennsylvania Office of Consumer Advocate and the Utility Reform Network. In an affidavit by Dr. Trevor Roycroft attached to such comments he concluded:

- A market-based mechanism will introduce new risks;
- The "Second Price" interpretation of necessary support reflects the problems with market-based distribution of support;
- A market-based approach will not generate substantial bidding competition and the Commission should be prepared for the failure of auctions;
- The application of auctions will generate inefficient results; and
- Auction experience has had mixed results.⁵⁰

The Nebraska Companies conclude that market-based approaches, such as procurement auctions, are inappropriate for distributing broadband support to unserved portions of rural America. The Commission has left too many important questions unanswered relating to auctions. These include how unserved areas will be defined, how prices will be established for the supported service and the ongoing POLR obligations, and how an auction winner will interact with the existing network. The auction process for distribution of universal service remains theoretical and untested. If the Commission proceeds further on auctions at all, it should do so carefully and in a way that develops the auction technique gradually.

⁵⁰ Comments of The National Association of State Utility Consumer Advocates, The Maine Office of Public Advocate, Office of the Ohio Consumers' Counsel, Pennsylvania Office of Consumer Advocate and the Utility Reform Network, *Affidavit of Trevor R. Roycroft, Ph.D.*, pp. 9 and 37-38.

D. Meaningful State/Federal Collaboration is Necessary to Achieve Broadband Deployment

The Nebraska Companies' initial comments recommended that the Commission establish collaborative relationships with state commissions, including financial and other incentives for states to generate universal service funds as authorized by 47 U.S.C. § 254(f).⁵¹ This recommendation was based in part on the financial and operational limits of the Commission itself, on the greater local knowledge of state commissions, and on continuity with historical regulatory responsibilities.

The NPSC filed very similar recommendations. The NPSC maintained that since all states have a stake in broadband deployment, all states should also share in the costs.⁵² The Nebraska Companies agree with the NPSC that this goal can best be achieved through creating stronger and explicit incentives for states to supplement financially the federal USF mechanisms.

The PPUC was also concerned about COLR issues and federalism. The PPUC correctly noted that maintenance of universal service within the United States and within individual states is a joint federal-state responsibility.⁵³ The PPUC reported that it currently oversees a statutorily mandated deployment of broadband facilities and services by ILECs that have COLR duties.⁵⁴ The PPUC noted the complexities that arise when one provider undertakes to provide broadband throughout an area but another provider has residual COLR responsibility for voice, and it stated that reform of federal USF mechanisms and refocusing support to broadband cannot be “separate

⁵¹ Comments of the Nebraska Companies, p. 84.

⁵² Comments of the NPSC, p. 15.

⁵³ Comments of the PPUC, p. 35.

⁵⁴ *Id.*, p. 37.

and distinct from the necessary, joint, and coordinated federal-state re-examination of COLR duties and/or responsibilities.”⁵⁵

The Nebraska Companies also agree with the PPUC assertion that states should be allowed to set priorities for the deployment of broadband facilities and services that are and will be supported by both the federal USF and other sources. As the PPUC noted, this makes sense because states are in a better position to know and to manage their respective broadband deployment needs. In addition, some states have already taken initiatives in this area. Their achievements reduce the need for federal funding, and federal programs should be coordinated with those already enacted by these early adopter states.⁵⁶

E. Fiber to the Premises is Often the Most Cost-Effective Method of Providing Broadband

Verizon criticized the RoR carriers for deploying FTTP, stating that it is the most expensive technology.⁵⁷ The Nebraska Companies counter that to the contrary, FTTP today is often the most economical method for deploying broadband to customers, especially in rural areas. As was demonstrated in the Nebraska Companies’ initial comments, deployment of fiber has significant economic and performance advantages over wireless technologies in rural areas – in the short run and increasingly so in the long run. As broadband demands continue to increase, FTTP will have an increased price advantage over other technologies. Over the last several years, increases in copper prices, advances in technology, and growth in broadband demand have all worked together to make FTTP an economical alternative for providing broadband.

⁵⁵ *Id.*, pp. 37-38.

⁵⁶ Comments of the PPUC, p. 38.

⁵⁷ Comments of Verizon and Verizon Wireless, p. 13.

Twenty or thirty years ago, perhaps an argument might have been warranted that placement of FTTP should be restricted as asserted by Windstream,⁵⁸ but today that is certainly not the case. During that era, fiber optic communications systems were expensive and difficult to design and install, and copper cable was the most common transport medium used by telecommunications companies. Communications were predominately by voice, which did not require particularly robust networks, and fiber optic networks were limited primarily to high-capacity interoffice networks and other long haul applications. Today, both telephone and CATV companies are deploying fiber optic cable in their distribution network (local loop) because it often requires a lower initial investment and is substantially less costly to maintain in comparison to a copper network. Fiber optic networks are much better suited for delivering broadband than are copper networks.

Once fiber infrastructure is in place, service providers are able to increase the broadband speed by a factor of 100 or more by simply upgrading the electronics on the fiber cable. The electronics represent a relatively small portion of the overall fiber network investment. Fiber technology will allow higher speeds to be delivered to customers over time, and therefore represents the best technology for meeting future broadband service needs.

Even though telephone companies have been deploying FTTP for at least 10 years, most customers in the United States are connected to their local telephone company using twisted pair copper cables. Many of these copper facilities were installed in the 1970s and 1980s when the country was converting from multi-party systems to single-party systems. Copper cable has a limited life expectancy and normally begins to fail when 25 to 35 years old. As the copper networks reach the end of their useful lives and must be replaced, it is most economical to

⁵⁸ Comments of Windstream Communications, Inc., p. 43.

replace them with fiber. Not only is a fiber network less expensive to deploy and maintain, but due to its superior broadband capabilities, it promises significantly better revenue potential over its useful life.

Figure 1 shows homes passed by and connected to fiber in the US between 2004 and 2008.⁵⁹ Although the Verizon comments argue that FTTP is the most expensive technology,⁶⁰ Verizon has deployed FTTP to more customers in the United States than any other carrier.

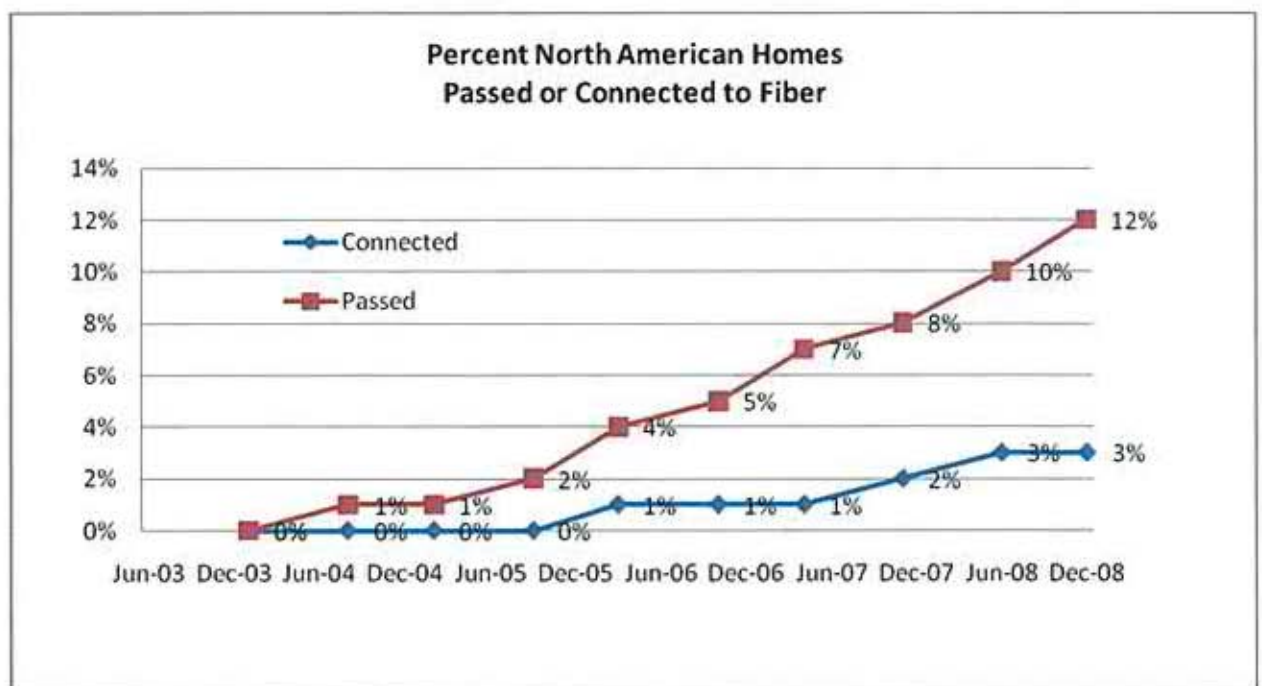


Figure 1. FTTP Deployments in North America

As is evident from the continued growth of fiber deployment, FTTP is attractive to service providers and has become the preferred technology for providing broadband services. FTTP projects have also been favored by the United States Government. NTIA and RUS' Notice of Funds Availability ("NOFA") released July 9, 2009 stated that NTIA expected to issue

⁵⁹ The Fiber Optic Association, Inc., 2008, <http://www.thefoa.org/tech/ref/appln/FTTH.html>.

⁶⁰ Comments of Verizon and Verizon Wireless, p. 13.

awards on a technologically neutral basis, and expected to support projects employing a range of technologies (*e.g.*, fixed and mobile wireless, fiber, satellite). Nevertheless, the actual results favored fiber projects.

- NTIA has awarded 56 Infrastructure projects through the American Recovery and Reinvestment Act totaling \$1.2 billion in Federal grant funds to deploy middle mile and last mile broadband facilities in unserved and underserved areas of the United States. Of these awards, 48 were for wireline fiber-optic projects, totaling \$895 million, or 77 percent of the total funds awarded. Many of the NTIA awardees are using funds to install hundreds of miles of new fiber-optic facilities to replace inadequate copper infrastructure in predominantly rural areas.
- Between December 2009 and March 2010, RUS announced a total of 68 awards for broadband projects in 31 states and one territory totaling almost \$1.068 billion. Figure 2 depicts RUS NOFA Round I awardees by technology and demonstrates that fiber-optic cable projects received half of the awards.⁶¹

⁶¹ RUS Quarterly ARRA Report Submitted to The Committee on Appropriations United States Senate and The Committee on Appropriations United States House of Representatives, May 17, 2010.

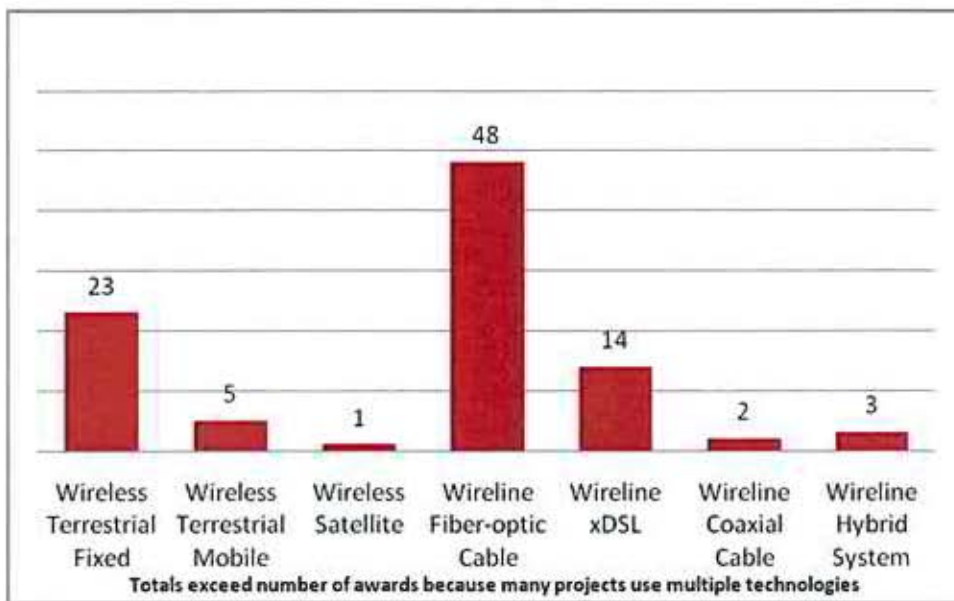


Figure 2 – Broadband Stimulus ARRA Round 1 BIP Awardees by Technology

FTTP can be cost effective in many circumstances. The broadband capability of a copper network decreases as the length of the copper cable increases. This can be seen in Figure 3, which was taken from the Vantage Point Solutions Engineering Study⁶² (“VPS Study”) and illustrates downstream broadband speed versus reach for the widely deployed ADSL2+ DSL technology. At distances of less than 2,000 feet, it is possible to achieve downstream speeds in excess of 30 Mbps while 4 Mbps is the maximum speed that can be supported on a 15,000 foot loop.

Deploying fiber deeper into the network (closer to the customer) allows the service provider to shorten the length of the copper cable serving the customers. However, continuing to reduce the copper cable length, especially in rural areas, can be more costly than deploying a FTTP network. This is especially true in very sparsely populated areas where short copper

⁶² Vantage Point Solutions, “Nebraska Rural Independent Companies-An Engineering Analysis of the Broadband Assessment Model Using Actual Network Data”, July 2010, attached to Comments of the Nebraska Rural Independent Telephone Companies, p. 29.

loops require a large number of field electronics cabinets or Digital Loop Carriers (DLCs). These DLCs not only require a significant initial investment, but also require maintenance, software upgrades, power, and batteries.

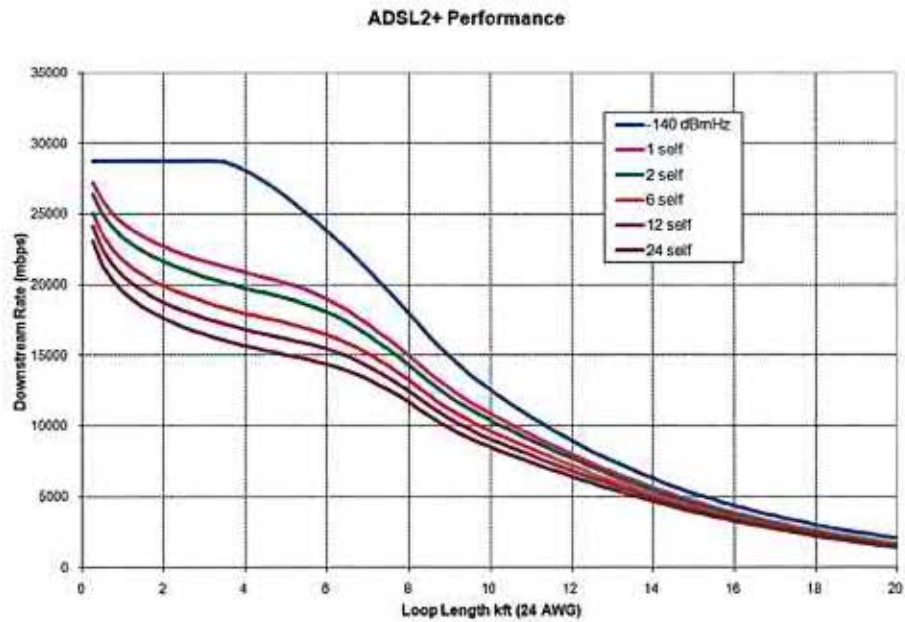


Figure 3-ADSL2+ Downstream Rate/Reach Data

Whenever a new cable is needed, fiber is less expensive than copper. Figure 4 shows typical pricing for copper and fiber cables of various sizes. A large fiber cable costs less per foot than a small copper cable. Installation costs for fiber and copper cable are similar.

| | Price per Foot | Price per 12,000 Feet |
|------------------|----------------|-----------------------|
| 50 pair Copper | \$1.25 | \$15,000 |
| 150 pair Copper | \$3.53 | \$42,360 |
| 72 strand Fiber | \$0.45 | \$5,400 |
| 144 strand Fiber | \$0.85 | \$10,200 |

Figure 4 - Copper and Fiber Material Cost

Figure 4 understates the benefit of fiber since a single strand of fiber can support all of a customer's fixed telecommunications needs, while many small business customers require two or three copper cable pairs and large business customers require many copper cable pairs. It is clear that wherever a new network is required or where old copper cables must be replaced, a FTTP network provides more broadband capacity at a lower cost than a copper network.

Fiber networks have a large speed advantage over copper, a difference that is likely to become increasingly important over time. The NBP suggests that the national broadband speed requirements should be reviewed and updated every four years.⁶³ The Broadband Availability Gap, OBI Technical Paper No. 1 ("OBI No. 1")⁶⁴ assumes that broadband speeds will grow at 26% per year.⁶⁵ At this rate, the broadband speed requirement will double every three years. As broadband speed demands increase, the copper DSL network will need to be upgraded by repeatedly shortening the copper loops that support the DSL service.

The preceding discussion demonstrates that the cost to provide broadband depends heavily upon the age, extent and quality of the existing copper network, the remaining life of the existing infrastructure, and the broadband speed required. To provide the Commission with some location-specific data, the Nebraska Companies caused an engineering analysis to be performed concerning Great Plains Communications' Gordon, Nebraska Exchange.

The OBI No. 1 determined that 4/1 Mbps would meet customer demands through the year 2015.⁶⁶ Assuming a growth rate of 26%, the downstream broadband speed requirement

⁶³ NBP, p. 153.

⁶⁴ The Broadband Availability Gap, OBI Technical Paper No. 1, Federal Communications Commission, April 2010.

⁶⁵ *Id.*, p. 42.

⁶⁶ *Id.*, p. 113.

would be 8 Mbps in 2018 and 16 Mbps in 2021. The purpose of this engineering study is to compare the costs associated with achieving these downstream broadband speeds using either a copper DSL network or a FTTP network.

For the DSL analysis, the network investment required to provide downstream broadband service of 8 and 16 Mbps was determined, since the 4 Mbps downstream investment was previously determined in the VPS Study.⁶⁷ These DSL designs required outside plant construction for only the 1,018 customers in the rural portion of the Gordon Exchange, as the in-town copper loop lengths are currently short enough to support downstream broadband of up to 20 Mbps with only the addition of electronics in the central office.⁶⁸ New construction consisted of installing DLCs in the rural area to shorten copper loop lengths enough to achieve the desired downstream bandwidth. Fiber was installed from the existing central office in town to each of these DLCs. The existing copper plant was used to complete the last portion of the loop between the DLC and each customer location.

The cost of the DLC upgrade is shown in Figure 5. As shown in the VPS Study, 99 DLCs were required for the 4 Mbps design.⁶⁹ The 8 Mbps design was incremental to the 4 Mbps design, so the cost for the 8 Mbps design includes the initial costs associated with the 4 Mbps design. Likewise, the cost associated with the 16 Mbps design includes the cost of the 8 Mbps design. The 8 Mbps design, the DLC count roughly doubled to 196 locations and in the 16 Mbps design 278 DLCs were required, almost three times the number needed to provide 4 Mbps service.

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*, p. 49.

| Cost Summary of DSL Upgrade (Gordon Exchange) | | | | |
|--|-------------------------|-------------------------------|---------------------------------|-------------------------|
| Downstream Speed | Loop Length (ft) | Electronics Investment | Outside Plant Investment | Total Investment |
| 4 Mbps | 15,000 | \$1,295,000 | \$6,285,000 | \$7,580,000 |
| 8 Mbps | 10,000 | \$2,255,000 | \$7,921,000 | \$10,176,000 |
| 16 Mbps | 5,000 | \$3,067,000 | \$8,407,000 | \$11,474,000 |

Figure 5 - Gordon DSL Upgrade Projected Costs

For the FTTP analysis, only rural customers needed to be upgraded to FTTP, since the maximum downstream broadband speed required for this analysis is 16 Mbps and the in-town customers can achieve 20 Mbps without a FTTP upgrade. This design is identical to the 20 Mbps design that was presented in the VPS Study,⁷⁰ which served the town customers with DSL and constructed FTTP to all rural customers. The cost for this network upgrade is shown in Figure 6.

| Cost Summary of FTTP Upgrade (Gordon Exchange) | | |
|---|---------------------------------|-------------------------|
| Electronics Investment | Outside Plant Investment | Total Investment |
| \$1,695,000 | \$8,145,000 | \$9,840,000 |

Figure 6 - Gordon FTTP Upgrade Projected Costs

Figure 7 summarizes the differences in initial investment among the four options described in the preceding paragraphs for the Gordon Exchange.

⁷⁰ *Id.*, pp. 49-50.

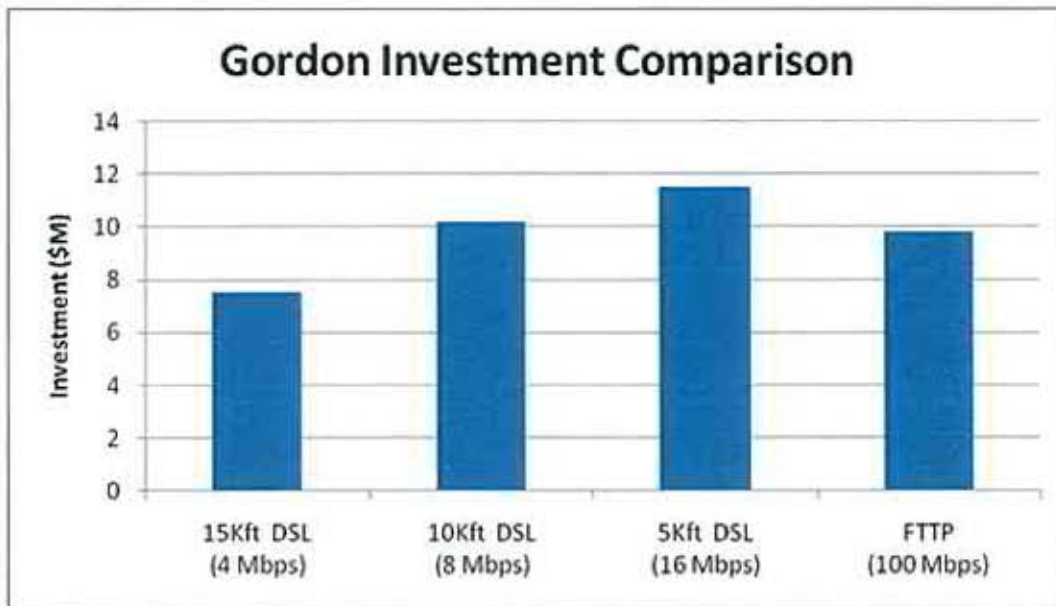


Figure 7 - Gordon Design Cost Comparison

When comparing initial investment costs, there is a \$2.3 million premium for the FTTP network when compared to the 4 Mbps DSL design. If 4 Mbps downstream was the maximum broadband speed required by subscribers, the copper network design would provide the lower initial cost of deployment. However, the total investment in both the 8 Mbps and 16 Mbps copper designs actually exceeds the total cost of the FTTP investment. The 8 Mbps copper design cost is approximately 3% higher than the FTTP cost, while the 16 Mbps design cost is approximately 17% higher than the FTTP cost.

This analysis assumes that the retained portions of the rural copper plant will continue to be functional. In reality, though, the rural copper plant in Gordon is 30 to 35 year old and will need to be replaced soon. To make an accurate comparison between aged copper cable and new fiber cable with a 30-year or longer life, subsequent capital expense should also be considered.

Industry practice is to expect a useful life of 25 to 35 years from copper plant.⁷¹ As cable reaches the end of its useful life, it begins to fail, and replacement is required. Figure 4 showed that new copper cable actually costs more than similarly sized new fiber cable. For this reason, the initial price advantage of the DSL design would be reduced or eliminated, as old copper cable must be replaced in a piecemeal fashion to keep the DSL network operational.

Operational costs of copper networks are also generally higher than those of FTTP networks. Copper wires are susceptible to electrical interference, corrosion, and changes in electrical transmission characteristics. Copper cables, especially aging copper cables, require more ongoing maintenance than do fiber cables. In addition, the cost of electricity to power the DLCs also increases the operational cost of DSL over a FTTP network. The power costs of a DLC can be \$30 per month, so for 278 DLCs the cost would be over \$100,000 per year.

Figure 8 shows the broadband speed capabilities of the same four design options for the Gordon exchange.

⁷¹ For example, Superior Essex, a large global provider of fiber and copper cables, believes "Outside Plant (OSP) copper cables are designed based on a life expectancy of 30 years."
<http://www.superioressex.com/communicationscable.aspx?id=1888#3>

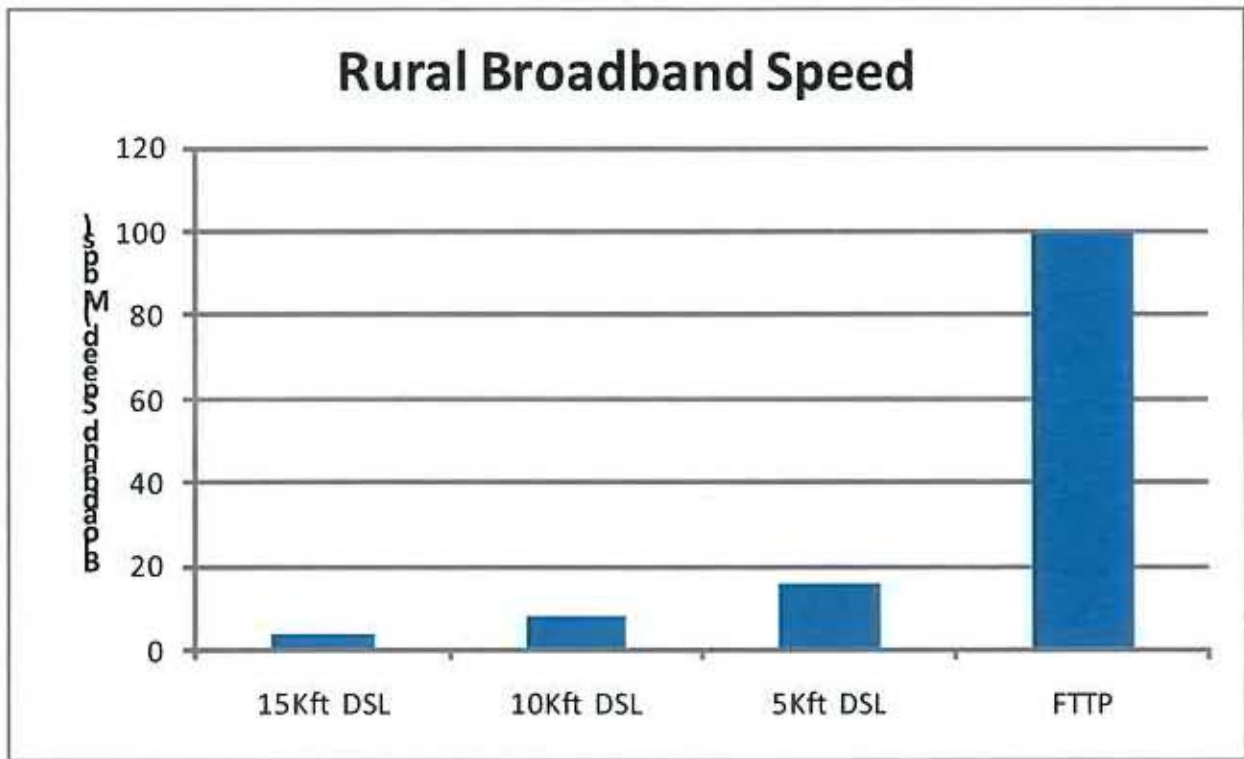


Figure 8 - Downstream Broadband Speed Capability

Together, Figures 7 and 8 demonstrate that today the FTTP design provides the best broadband speed performance at an economically attractive cost.⁷² In coming years, significant advances in FTTP capabilities are expected, while no comparable increases in DSL broadband speeds are expected. Figure 8 lists the speed of the FTTP design at 100 Mbps, but it could just as easily have shown FTTP speed at 1,000 Mbps. The cost would have been approximately the same, and the only change would have been the electronics.

In summary, FTTP is the technology of choice when deploying broadband networks today. FTTP provides adequate upstream and downstream broadband speeds to support future services, as well as better quality and reliability to the customer. FTTP provides an economical

⁷² As mentioned earlier, the bandwidth shown for the FTTP design in Figure 9 is for the rural customers only. The town customers are still served on copper in this example and would be limited to bandwidths supported by DSL.

upgrade path that will be the most cost effective solution in the future. Making a significant investment in DSL or fixed wireless today, followed by a required upgrade to higher broadband speeds later, will produce a more costly and less capable network. When considering all the facts, it is apparent why so many providers have adopted FTTP as their network technology of choice when replacing aging copper networks or building networks to serve previously unserved areas.

F. Costs and Revenues Associated with Video Services should be excluded in Determining CAF Support

The *NOI* sought comment on whether the Commission should consider revenues, as well as costs, in determining CAF support.⁷³ The NBP recommended that support should be based on the net broadband investment gap (i.e., forward-looking costs less revenues) and that the revenues should include all revenues earned from broadband-capable network infrastructure.⁷⁴ The Nebraska Companies agree, as a general principle, that CAF support should be calculated based on consideration of both revenues and costs.

Nevertheless, the Nebraska Companies' initial comments also recommended that only revenues derived from the provision of broadband Internet service should be included in determining CAF support and that neither the revenue nor the costs associated with video services should be used in determining CAF support.⁷⁵ On this point, parties have commented that estimating video revenues and costs are difficult and unreliable and that video revenues should not be included in the calculation because it is likely to increase the size of the CAF.

⁷³ *NOI*, para. 35.

⁷⁴ *Id.*, para. 36.

⁷⁵ Comments of the Nebraska Companies, p. 28.

Qwest, for example, argued that the Commission should use total costs of providing supported services to determine on-going support.⁷⁶ Specifically, this means that Qwest recommended against considering the additional costs and revenues from providing video service should not be considered in determining support.⁷⁷

The Public Utilities Commission of Ohio (“PUCO”) recognizes that a cost/revenue model that includes video would present several problems. Any such model must capture all of the costs and revenue associated with the broadband network, including those costs associated with cable TV (i.e., programming costs and revenue).⁷⁸ The PUCO recognizes that estimating the demand for each application further adds a level of complexity to the analysis. Several factors will affect costs and revenues for video service such as the minimum number of channels that must be purchased. Revenue will fluctuate over time as services, service offerings and technologies change, and it will be difficult to maintain a cost/revenue model that will be responsive to such changes, and thus, the model may become unreliable in estimating revenue.⁷⁹

If video revenues could be accurately forecasted, it might be logical to include such revenues in determining CAF support, so long as the overall level of CAF support is reduced. For example, Sprint recommends that both revenues and costs, including those associated with video services, should be considered in determining CAF support.⁸⁰ However, since Sprint concludes that this will reduce the amount of USF needed to deploy a broadband network,⁸¹

⁷⁶ Comments of Qwest Communications International Inc., p. 19.

⁷⁷ *Id.*

⁷⁸ Comments of the PUCO, p. 9.

⁷⁹ *Id.*

⁸⁰ Comments of Sprint Nextel Corporation, p. 4.

⁸¹ *Id.*, p. 11.

Sprint must believe that the revenues associated with providing video services are greater than its associated costs.

The Nebraska Companies disagree with Sprint's conclusion. Based upon recent experience, the Nebraska Companies believe that rural video services are typically losing money today, primarily due to high programming costs. As CenturyLink observes, if revenues and costs associated with video services are included, the net result could actually lead to negative impacts on CAF if the additional services are not profitable in particular geographic areas.⁸² If the Commission includes video costs and revenues in its support calculation, the likely effect will be to increase the need for USF support.

In sum, the Nebraska Companies recommend that costs and revenues associated with the provision of video service be excluded in determining CAF support. This is an appropriate policy since video is not a supported service and is not normally provisioned as part of broadband Internet service. In addition, by excluding both video costs and revenues, the Commission can avoid the complexities associated with estimating multiple tiers of video revenues and multiple combinations of content costs associated with basic programming, pay-per view channels, premium programming, HDTV, and video-on-demand. By excluding video revenues and costs the Commission will not increase the investment gap and further increase the need for federal USF support. Finally, since some video services share last-mile facilities with broadband Internet service, the Nebraska Companies recommended that the Commission develop cost allocations to "carve-out" a portion of last-mile costs associated with video.

G. FUSF Support is Required to Preserve and Continue the Consumer Benefits of the Existing Network

⁸² Comments of CenturyLink, pp. 54-55.

The Commission requested comments on whether any of the steps to cut legacy High-Cost support proposed in the *NPRM* would negatively affect currently affordable voice services.⁸³ Many parties expressed concerns about proposals to shift monies from existing universal service programs to the CAF.⁸⁴ The Nebraska Companies share these concerns.⁸⁵

Most investments by rural telecommunications companies are made through the use of private capital. This private capital is obtained from lending institutions and many of these loans are predicated upon the continued receipt of universal service support. Borrowers, as well as lenders, have relied in good faith on the universal service rules in effect when the loans were made. Moreover, in addition to supporting high-quality, ubiquitous voice services, many of these investments support the provision of broadband services.

Elimination of the universal service support that underlies these loans does not represent good policy nor is it justified. Unwarranted shifts in existing universal service funding could have significant detrimental impacts on both voice and broadband services and on the lending institutions which have underwritten the networks over which these services are provisioned.

In connection with the proposed implementation of CAF, it is unclear whether the Commission intends to continue to support capital investments in the current manner or will begin to provide capital expenditure-related universal service support to recipients only on an up-front basis. The Nebraska Companies believe that the current system of universal service

⁸³ *NPRM*, para. 53.

⁸⁴ Comments of Fred Williamson, p. 10; Comments of TDS, p. 12; Comments of AT&T, p. 12; and Comments of TCA, p. 5.

⁸⁵ The Nebraska Companies understand that the Commission intends to keep current HCL, LSS, and capped ICLS support in place for seven years; however it is uncertain what level of CAF funding will be available after that seven-year period. This seven-year transition period may not, however, be adequate for incumbents to recover the investments made in embedded plant facilities.

support that assists, where necessary, in the recovery of capital investments over their depreciable lives has worked well, and it is likely to be superior to any new regime that includes only up-front capital expenditure support payments.

If the Commission believes there is a lack of accountability regarding the use of FUSF support, then the Commission could easily add accountability measures for broadband expenditures. On a going-forward basis, the Commission can require investments and operating expenses which receive universal service support to be subject to reasonable standards in order to ensure that FUSF support is used to further the deployment of broadband services as envisioned in the NBP.

The Nebraska Companies support elimination of the identical support rule. This support represents duplicative funding. In 2009, \$1.4 billion, nearly one-third of high-cost FUSF support, was paid to companies under the identical support rule. At the discount rate of 11.25% used in the NBP, over 10 years the monies provided under the identical support rule have a present value of \$8.2 billion which exceeds the lowest cost provider investment gap cited in OBI No. 1.⁸⁶ The Commission should exercise extreme caution in considering moving any other existing federal universal service support from existing funding mechanism to the CAF.

III. CONCLUSION

The Nebraska Companies respectfully request the Commission to carefully consider, adopt and incorporate, as appropriate, the positions set forth in the foregoing Reply Comments into its efforts to implement the NBP and to direct CAF support to accomplish such implementation.

⁸⁶ OBI No.1, p. 39.

Dated: August 11, 2010.

Respectfully submitted,

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The Nebraska Rural Independent Companies

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